# ON SOME TRICHOPTERA FROM S. RHODESIA AND PORTUGUESE EAST AFRICA 

By D. E. KIMMINS

Mr. Elliot Pinhey, of the National Museum of S. Rhodesia, has sent me for identification collections of Trichoptera taken at Victoria Falls in February, July and September 1957 and also a few from Mount Gorongosa, Portuguese East Africa, September 1957. Over twenty species are represented and the collections include examples of seven new species. Five of these are described and figured in this paper and the remaining two I propose to hold back until more material is available.

The Hydroptilidae include a second species of Catoxyethira, a genus hitherto only recorded from the Congo. The Hydroptilid fauna of the African mainland is virtually unknown, a mere seventeen species now being known south of the Mediterranean region. To assist in preliminary identification of these tiny Trichoptera, I am giving a key to the genera already recorded, but I have no doubt that further collecting will soon render it out-of-date.

This paper also provides an opportunity to give revised figures of Chimarra intexta Mosely, a species which was described from an imperfect specimen.

Mr. Pinhey has generously allowed me to retain the types of the new species, and also such other material as was needed, for the British Museum (Nat. Hist.).

Chimarra fuscipes sp. n. (Philopotamidae)
(Text-fig. I)
Port. E. Africa: Mt. Gorongosa, ix. 1957, E. Pinhey, I © ${ }^{\text {J }}$.
S. Africa : Natal, National Park, iii. 1932, J. Ogilvie, I ${ }^{\wedge}$, Pres. by Imp. Inst. Ent., B.M. 1941-88.

Head and thorax bright reddish yellow, with golden hairs. Antenna fuscous, the basal segment reddish yellow. Palpi fuscous. Legs yellowish, the tarsi and also the anterior tibiae fuscous, spurs fuscous. Abdomen yellowish fuscous, genital segment darker. Wings pale fuscous, with fuscous pubescence. In fore wing, Rs arises only slightly distad to base of thyridial cell. Median cell a little shorter than discoidal. Fork $R_{4}$ sessile, fork $M_{1}$ shorter than its footstalk. In hind wing fork $M_{1}$ also with a long footstalk, fork $C u_{1 a}$ only slightly longer than its footstalk.
${ }^{\top}$ genitalia. Eighth segment with its tergite forming a hood overhanging the ninth, its sternite somewhat produced at its centre. Ninth segment narrowed to a transverse rib dorsally, its ventral surface with a long, slender, slightly clavate ventral process. Median lobe of tenth segment bifid, each branch rounded apically and with a rounded swelling on the outer margin beyond midway. Four or five sensillae on upper surface. Lateral lobes about as long as median, situated below it and separated
by an ovate excision. The outer apical angle is produced in a triangular tooth. Superior appendage small, ear-like. Aedeagus containing two blackish spines. Clasper subtriangular in side view, upper margin concave, lower convex, apex slightly concave and incurved, bearing four inwardly directed teeth.

Length of fore wing, 8 mm .


Fig. 1. Chimarra fuscipes sp. n. ô genitalia. (A), lateral ; (в), dorsal ; (c), ventral, aedeagus and median lobe of tenth segment omitted ; (D), right clasper, from behind.
$\sigma^{\lambda}$ holotype (Mt. Gorongosa) mounted as microscope preparation, ot paratype pinned. This species appears to be related to C. ruficeps Ulmer in the general pattern of the ơ genitalia and in the reddish yellow head and thorax. It differs in the thorax entirely reddish yellow, the bifid median lobe of the tenth segment and the more triangular clasper, whose upper margin is concave and apical margin armed with four inturned teeth.

## Chimarra intexta Mosely

(Text-fig. 2)
Amongst some accessions presented by the Commonwealth Institute of Entomology were two males of this species from the type locality (Njala, Sierra Leone). Mosely had only an incomplete specimen of the male, and the additional material confirms the supposition in my recent paper that the type was considerably more damaged than Mosely believed. Not only was one of the lateral lobes of the tenth segment destroyed, but the entire apical portion of the aedeagus was missing. The new material shows that the apex of the aedeagus terminates in two strong spines and within are two smaller spines. The " semi-transparent penis-sheaths" mentioned by Mosely were probably part of the damaged aedeagus. The lower angles of the lateral lobes of the tenth segment turn out more than is shown in the


Fig. 2. Chimarra intexta Mosely, ${ }^{\text {ot }}$ genitalia. (A), lateral ; (B), apex of aedeagus, dorsal.
original illustration. I am giving new figures of the $\begin{gathered}\text { t genitalia in side view and of the }\end{gathered}$ apex of the aedeagus in dorsal view. Chimarra cognata Kimmins resembles C. intexta not only in the form of the clasper but in the structure of the aedeagus also. .

Pseudoneureclipsis truncata sp. n. (Polycentropodidae)
(Text-fig. 3).
S. Rhodesia: Victoria Falls, ii. 1957, E. Pinhey, 5 ot.

Insects collected in alcohol. Head dark fuscous, eyes large, globose, antenna ochraceous, palpi pale fuscous. Thorax, wings and legs pale fuscous. Fore wing with fork $R_{2}$ about as long as its footstalk, fork $R_{4}$ sessile, fork $M_{1}$ with a short footstalk, fork $M_{3}$ sessile, vein $C u_{1}$ not forked. Median cell extending basally to apex of thyridial cell. In hind wing, forks $R_{4}, M_{1}$ and $C u_{1 a}$ present and stalked.
$\delta^{\top}$ genitalia, Ninth segment narrowed dorsally to a transverse band. Median
lobe of tenth segment divided apically into two rounded, setose lobes, which in side view project above the lateral lobes. The latter are separated from the median lobe by a deep, narrow excision, extending almost to the base of the tenth segment, in side view bluntly pointed at apex, in dorsal view terminating in a short finger. Arising from the ventral surface of the tenth segment are two claw-like paraproctal processes, directed caudad, from above straight, hooked outwards at apex. Aedeagus slender, cylindrical, apical membrane clothed with minute spinules ; two spiniform


Fig. 3. Pseudoneureclipsis truncata sp. n. (A-c) and Ps. mlangensis Mosely, paratype, (D-E), $\boldsymbol{o}^{\text {a }}$ genitalia. (A), lateral ; (B), tenth segment, dorsal ; (C), left clasper, dorsal ; (D), right half of tenth segment, dorsal ; (E), left clasper, dorsal,
parameres. Claspers fused basally, from side quadrate, apical margin truncate, clothed with microscopic setae. There is an upper branch (? second segment) fused to the dorsal margin of the clasper, abruptly narrowed and hooked inwards apically, apex from above rounded. Above the base of the claspers are two rounded, setose lobes.

Length of fore wing, 5 mm .
$\delta^{\top}$ holotype mounted as microscope preparation, ${ }^{\hat{1}}$ paratypes in British Museum (Nat. Hist.) and National Museum of S. Rhodesia, Bulawayo. This species is closely related to Ps. mlangensis Mosely, but differs in details of $\boldsymbol{o}^{1}$ genitalia. The tenth segment is more deeply excised and the lateral lobes are narrower in dorsal view. Branches of the median lobe narrower and more rounded apically in dorsal view. Paraproctal processes less curved. Clasper in side view with a truncate apical margin, relatively shorter. Upper branch less acute in dorsal view.

## Family Hydroptilidae

In this family, the " Micros " of the Trichoptera, fourteen species have so far been recorded from the African mainland, south of the Mediterranean region. There must be a vast number of species still to be found, since almost every collection brings in a few new species and this from the Victoria Falls is no exception, providing yet three more. In the hope that it may encourage collectors to pay more attention to these tiny insects, I give below a provisional key to the Hydroptilid genera already recorded from the Mainland.

1. Ocelli present (sometimes inconspicuous) . . . . . . . . 2

- Ocelli absent . . . . . . . . . . . . . 5

2. Tibial spurs 0.3 .4 . . . . . . . . . . . . 3

- Tibial spurs I.2.4 . . . . . . . . . Afritrichia Mosely

3. Wings tapering to long, more or less parallel-sided apices. Venation reduced, no
apical forks . . . . . . . . . Argyrobothrus Barnard

- At least the fore wing moderately broad, not terminating in a long narrow apex.

At least fork $M_{1}$ present in both wings
4
4. Only fork $M_{1}$ in both wings ( $R s$ in fore wing forked to make veins $R_{2+3}$ and $R_{4+5}$ ) Catoxyethira Ulmer (partim)

- Forks $R_{2}, R_{4}$ and $M_{1}$ in fore wing, $R_{4}, M_{1}$ and $C u_{1 a}$ in hind wing Ugandatrichia Mosely

5. Tibial spurs 0.2.4 . . . . . . . . . Hydroptila Dalman

- Tibial spurs 0.3.4 . . . . . . . . . . . . ${ }^{6}$

6. Fore wing with forks $R_{4}$ and $M_{1}$; hind wing with fork $M_{1}$ only Catoxyethira Ulmer (partim)

- Fore wing with forks $R_{2}, R_{4}$ and $M_{1}$; hind wing with fork $R_{4}$ only Orthotrichia Eaton


## ? Argyrobothrus sp.

Numerous females from Victoria Falls, February 1957 are referred here with some doubt, pending the discovery of males.

## Hydroptila africana sp. n.

(Text-fig. 4)
S. Rhodesia: Victoria Falls, ii. 1957, E. Pinhey, I ot.

Specimen collected in alcohol, much rubbed and rather bleached. Antenna with thirty segments. Scent organ small and obscure.
$\delta^{\top}$ Genitalia. A pointed process to the seventh sternite. Ninth segment narrowed above and below, lateral apical margins produced in short lobes, which are rounded in side view, lower margin incurved and triangular from beneath. Tenth segment


Fig. 4. Hydroptila africana sp. n. ơ genitalia. (A), lateral ; (B), aedeagus, lateral ; (C), ventral, aedeagus omitted.
forming an elongate, quadrate hood, lateral margins more sclerotized than centre, apex slightly excised. Aedeagus of the normal Hydroptila pattern, titillator broad at its base, tapering to a slender apex. Claspers fused basally, from the side somewhat clavate, apex shallowly concave. From beneath, the lower apical angle is curved outward.

Length of fore wing, $\mathrm{I} \cdot 8 \mathrm{~mm}$.
${ }^{\top}$ holotype mounted as microscope preparations. This species may be distinguished from the other two species already described from S. and E. Africa (cruciata Ulmer and capensis Barnard) by the absence of the paired sinuous spines (" titillators"
of Barnard), which are a conspicuous feature of these two species, and by the shorter claspers.

## Hydroptila sp.

Two different species, represented by females only, were taken at the same time as the foregoing male and in consequence no attempt has been made to associate either female with $H$. africana. One of the species has two very distinctive blackish spots on the dorsum of the ninth segment.

## Catoxyethira pinheyi sp. n.

## (Text-fig. 5)

S. Rhodesia : Victoria Falls, ii. 1957, E. Pinhey, 2 ot.
(In $80 \%$ alcohol.) Head pale fuscous, with fuscous and greyish hairs. Antenna with eighteen segments, very pale fuscous, with two bands of fuscous pubescence, a broad one about midway and a narrower one towards the apex. Ocelli present. Legs pale ochraceous. Fore wing with dense fuscous pubescence. Venation much as in the typical species, C. fasciata Ulmer.


Fig. 5. Catoxyethira pinheyi sp. n. ©. (A), Wing venation; (B), eighth to tenth segments, lateral; (c), the same, ventral.
$\delta^{\star}$ genitalia. Eighth sternite elongate, excised almost to its base in ventral view. From the side, the upper apical angle is produced upwards in a cup-shaped lobe, from which arises a long, stout, sinuous spine. Ninth segment much reduced and withdrawn within the eighth. From the side, and from beneath, in a cleared preparation, it is very narrow and U -shaped, the upper arm of the U slender and spiniform. Tenth segment membranous and clothed with microscopic setae, forming a hood over the stem of the aedeagus and projecting beyond the eighth segment. Aedeagus long and slender, tapering to a fine pointed apex. Claspers rather obscure, apparently fused to form a plate with a bilobed apex, each arm bearing one or two setae. On each side of this plate there appears to be a slender, acute spine.

Length of fore wing, $\mathrm{I} \cdot 4 \mathrm{~mm}$.
$\delta^{\top}$ holotype mounted as microscope preparation, ô paratype in National Museum of S. Rhodesia. This species differs from the generic diagnosis in possessing ocelli, which are however not conspicuous. It further differs from the characters given in Barnard's key to the S. African Hydroptilidae in possessing an anal lobe to the fore wing. It agrees with the generic diagnosis in its spur formula, the general pattern of the venation and in the strong spines of the eighth sternite of the male. I have therefore decided to retain it in the genus Catoxyethira. It differs from C. fasciata in its much larger eighth segment and less digitate claspers.

## Orthotrichia spinicauda sp. n.

(Text-figs. 6-7)
S. Rhodesia: Victoria Falls, ii., ix. 1957, E. Pinhey, 6 ot, 7 우.
(In $80 \%$ alcohol.) Head and thorax pale fuscous, with fuscous and greyish hairs. Antennae dull luteous, with sparse fuscous pubescence, about thirty-segmented ( $\mathbf{d}^{\text {) }}$. Fore wing with fuscous pubescence, with scattered greyish patches. Venation as in $O$. sanya Mosely, i.e., with $R_{3}$ in fore wing arising from the stem of $R_{4+5}$. A dense patch of black scales in the costal area at the base of fore wing in ${ }^{\circ}$. Abdomen yellowish, apex fuscous, with short processes to sixth and seventh sternites.
$\sigma^{a}$ genitalia. Completely asymmetric, as is usual in Orthotrichia. Ninth segment largely withdrawn into eighth, with deep apical and basal lateral excisions. From the right hand side, the lower part of the ninth segment is produced in a long slender spine, the lower basal margin forming a transparent lobe fringed with a number of strong setae. From the left side, the lower part of the ninth segment forms a vertical plate, its ventral margin sinuate and carrying a tuft of setae, apex curved inward and terminating in an upwardly directed hook, with a strong seta at its base. Upper part of ninth segment fused with the tenth segment, forming an elongate, lightly sclerotized hood, with a laterally directed hook near its apex, and with three spines on the right side. The innermost is hooked downwards, the next is directed tailward and towards its apex is curved inwards over the dorsum, and the third, which is shorter and straight, arises from the lower margin. Aedeagus long, slender, with a spiral tube and a loosely attached, spiniform paramere (both omitted from the figures). Below the aedeagus, and probably attached to the basal angles of the


Fig. 6. Orthotrichia spinicauda sp. n. đ̂ genitalia. (A), left, lateral ; (в), right, lateral ; (c), dorsal, aedeagus omitted ; (D), ventral, aedeagus omitted.
dorsal hood, is an elongate, semi-transparent structure, with a slender, basal apodeme and a bifid apex, each branch terminating in a seta. Claspers fused to form an asymmetric plate set within an excision of the ninth sternite, the plate excised almost to its base, the left clasper terminating in a sinuous finger.

ㅇ genitalia. A short, pointed ventral process on apical margin of sixth sternite ; apical margin of seventh sternite very slightly produced at its centre. Eighth segment forming a complete ring, apical margin of upper three-fourths irregular


FIg. 7. Orthotrichia spinicauda sp. n. \& genitalia. (A), lateral ; (B), ventral.
and fringed with setae. Ventral margin produced in an asymmetric subgenital plate, projecting beneath the ninth segment and tapering to a rounded apex. There is an opening on the ventral surface leading to a duct. Ninth segment lightly sclerotized above, membranous beneath. Tenth segment forming a rounded lobe with two short, rod-like cerci.

Length of fore wing, $\begin{gathered}\delta, ~ I \cdot 9 ~ m m . ~\end{gathered}$
${ }^{1}$ holotype, $+\frac{1}{2}$ allotype (ii. 57 , mounted as microscope preparations), paratypes in British Museum (Nat. Hist.) and National Museum of S. Rhodesia, Bulawayo. This species belongs to the sanya group and is related to $O$. straeleni Jacquemart. It differs in the spiniform processes of the ninth-tenth segments and the less completely fused claspers.


